

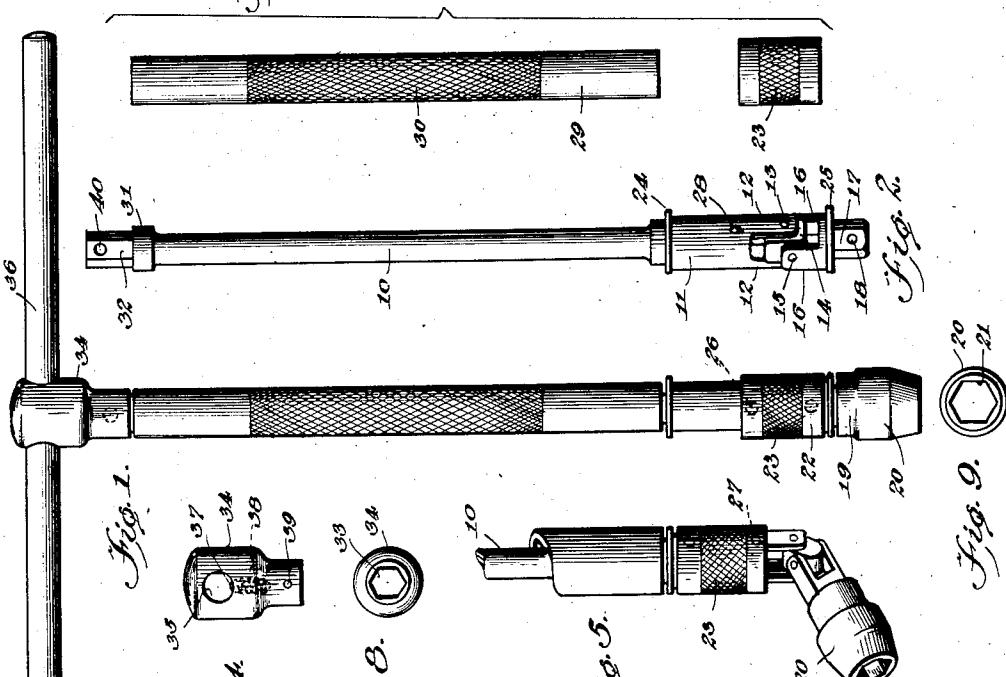
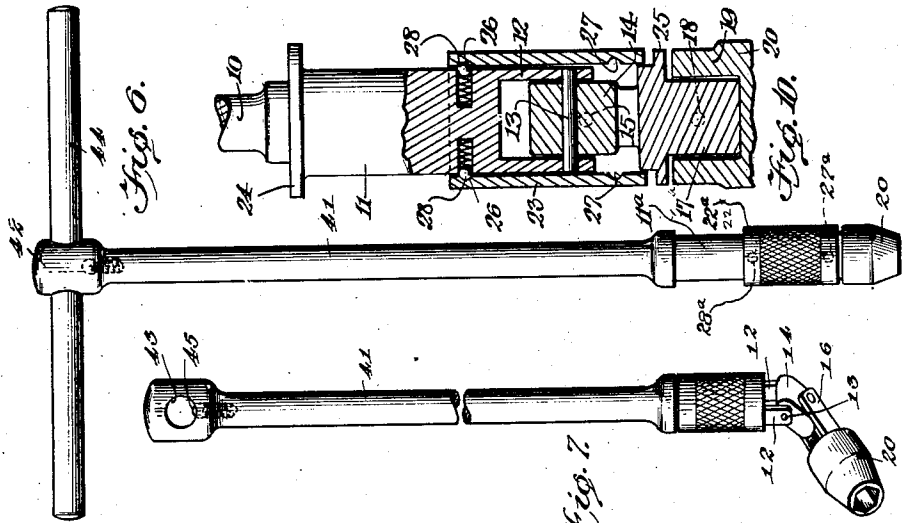
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J. N. PETERSON

SOCKET WRENCH

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WITNESSES

Lawrence D. Hoffman
Harry K. Seidel

INVENTOR

John N. Peterson,

BY *Munroe*

ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN N. PETERSON, OF MILWAUKIE, OREGON.

SOCKET WRENCH.

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This invention relates to wrenches and has for its object the provision of a device having a socket head mounted on a shank by a universal connection so that a socket
5 may be operated at any angle direct with a sleeve slidable on the shank and head for locking the head rigidly to the shank whereby the device may be employed as a straight wrench.

10 Another object of the invention is the provision of a wrench having a removable handle bar mounted in a head, which is adapted to be removably connected with the shank of the wrench.

15 This invention will be best understood from a consideration of the following detailed description, in view of the accompanying drawing forming a part of the specification; nevertheless it is to be understood
20 that the invention is not confined to the disclosure, being susceptible of such changes and modifications which shall define no material departure from the salient features of the invention as expressed in the appended claim.

In the drawings:—

Figure 1 is a view in elevation of a wrench constructed according to the principles of my invention,

30 Figure 2 is a view in elevation of a shank and universally connected socket head,

Figure 3 is a view in elevation of the sleeves for the wrench,

35 Figure 4 is a view in elevation of head for removably connecting a handle bar to the shank,

40 Figure 5 is a fragmentary view in elevation of the lower end of the socket wrench showing the same in operative position through the universal connection,

Figure 6 is a view in elevation of a modified form of the wrench used as a straight wrench, and

45 Figure 7 is a view in elevation of the wrench shown in Figure 6, with the universal connection in operative position.

Figure 8 is a bottom plan view of the head shown in Figure 4, and

50 Figure 9 is a bottom plan view of the socket employed with the wrench.

Figure 10 is an enlarged detail sectional view showing the spring pressed balls, and transverse passages and recesses therefor.

Referring more particularly to Figure
55 2, the shank 10 is provided having an enlarged lower end 11 from which projects a

pair of rigid integral ears 12. These ears are perforated to receive a pin 13 upon which is pivotally mounted a block 14 adapted to oscillate between the ears 12. A
60 pin 15 is mounted on the block 14 and adapted to be received by perforations in a pair of ears 16 carried by a socket head 17. This socket has a pair of spring pressed balls 18 as shown in Fig. 10, mounted in a transverse
65 passage, which are adapted to project from the ends of the passage and engage recesses 19 formed on the inner wall of the socket 20. This socket is of the usual type and may have a hexagonal opening 21 to receive a similarly formed nut or bolt head. The sockets, as is well known, are of various shapes and sizes for the engagement of bolt heads and nuts of various sizes and shapes. A swingably mounted block and supports for the swingably mounted socket head 17 permits movement of the head 17 in a plurality of different directions so that the wrench may be employed as shown in Figure 5, as
70 a universal wrench.

The sleeve 22 having a knurled portion 23 is slidably mounted on the enlarged portion 11 of the wrench and is limited in its upward movement by an annular shoulder 24 and in its lower movement by an annular
85 shoulder or flange 25 carried by the socket head 17. This sleeve has on its inner wall a pair of recesses 26 and 27 which are adapted to engage the spring pressed ball 28 carried by the enlarged portion 11 of the
90 shank 10 (see Fig. 10); so that when the sleeve is moved to its lowermost position, recess 26 engages ball 28 and locks same in place so that the wrench may be operated as a straight wrench. When sleeve is moved
95 to its uppermost position against the shoulder or flange 25, the recess 27 on the inner wall of the sleeve will engage the ball 28 and lock said sleeve in position.

A second and longer sleeve 29 is mounted
100 on the shank 10 and has a knurled portion 30. This sleeve is fitted on the said shank and terminates adjacent the upper end of a collar 31 on the shank. Beyond the collar 31 is provided a hexagonally shaped portion 32 adapted to be inserted within a hexagonally shaped passage 33 in a handle head 34. This head is provided with a transverse passage 35 through which is inserted a handle bar 36 and a spring pressed ball 37 is
105 mounted in a passage 38 longitudinally of the head 34 and is adapted to frictionally

engage the handle 36 and prevent displacement of the handle from the head. The lower end of the head is provided with a recess 39 adapted to engage the spring pressed ball 40 in the hexagonally shaped portion 32 of the shank 10 for locking the head against displacement from said shank.

Referring more particularly to Figures 6 and 7 a shank 41 has an integrally formed head 42 provided with a transverse passage 43 through which is adapted to be inserted a handle 44. A spring pressed ball 45 mounted in a longitudinal passage in the shank 41 is adapted to engage the handle bar 44 and prevent displacement of either bar from the head 42. The lower end of the shank is identical in construction with the construction shown in Figures 1 to 5 inclusive and in which a sleeve 22^a is slidably mounted upon an enlarged portion 11^a of the shank, and when the lower portion, as shown in Figure 6, is adapted to convert the wrench from a universal device, as shown in Figure 7, to a straight wrench, as shown in Figure 6. The sleeve is adapted to be locked in place by a spring pressed ball 28^a shown in dotted lines in Figure 6 and similar to ball 28 in Fig. 10, when the sleeve is in its lowered position, while said ball is adapted to engage the recesses 27^a similar to recesses 26 and 27 in Fig. 10, when the shank is elevated, and disclosed by Figure 7 permitting the

wrench to be actuated as a universal socket wrench. The enlarged portion 11^a is provided with spaced ears carrying a block 14 integrally mounted on a pin 13 while a socket head having ears 16 pivotally connected with the block 14 on the lower end of the head is adapted to be received in a socket 20.

What I claim is:—

A wrench comprising a shank having spaced ears at one end, a block pivotally mounted on the ears, a socket head having a pair of ears pivotally connected with the block, a sleeve slidably mounted on the shank adapted to embrace both pairs of ears and lock the socket head against movement, said sleeve adapted to be moved away from the ears to permit movement of the socket head in a plurality of directions, a removable head carried by the other end of the shank and provided with a transverse passage, a handle slidably mounted in the passage, and a spring pressed ball engaging the handle to prevent displacement of the handle from the head, and a second and long sleeve mounted on the shank above the first named sleeve and prevented from displacement from said shank by the handle head, said last named sleeve adapted to serve as a hand hold when the socket head is applied in various angular positions.

JOHN N. PETERSON.